

COMMUNICATION SYSTEM AND METHOD
FOR SUSTAINING THE ENVIRONMENT BY USING THE
INTERNET

5 This application claims priority from
Provisional Application No. 60/151,827, filed
September 1, 1999, entitled "Communication System
and Method of Using the Internet", which is
incorporated by reference.

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FIELD OF THE INVENTION

 This invention relates to information
processing and dissemination using the Internet.
15 More particularly, it relates to processing of
environmental technical data relating to an
industry to convert it into more meaningful
information for persons and organizations related
to the industry and making the meaningful
20 information available to them through the Internet
and other media.

BACKGROUND OF THE INVENTION

25 This invention addresses a longstanding need
in industry for improved environmental related
communications between a business entity and the
public which, of course, includes prospective
consumers of the products or services offered by
30 the industry. The use of the Internet provides a
new and creative approach that enhances the
effectiveness of this invention above the

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descriptions in respect to environmental performance. The rating system used for the publication is not compatible with industry or consumer needs.

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Sub 2) The Green Book reports a "Green Score" on a scale from zero to 100 for certification vehicle configurations used by the government to determine compliance with applicable standards. The vehicles are grouped by class, i.e. type of body style, such as midsize car, minivan, standard pickup and so on. A summary of ratings indicating the top-rated certification vehicle configurations in each class is tabulated using five symbols based on a certification vehicle configuration's rank within its class. The tabulation also shows the Green Score for each of the certification vehicle configurations. The Green Score is based on official emissions and fuel-economy test results, other specifications reported by automobile manufacturers.

The Green Book rating and reporting of the environmental performance of certification vehicle configuration is not a market-driven system for sustaining the environment because it is not compatible with the way auto manufacturers advertise and sell their products or the way consumers gain awareness. The consumer and manufacturer focus is at the brand/model level not the certification vehicle configuration level. The creation of the environmental performance

ratings in a timely manner at the brand/model level, rather than the certification vehicle configuration level is a non-trivial matter.

5 Sub A3> The Green Book is released half way through
the model year thereby limiting its impact to
those buyers in the later half of the model year.
In most cases a consumer can not order a vehicle
based on the way the Green Book describes them.
10 According to the Green Book, the only way the a
customer can be sure they are considering a
vehicle the Green Book has rated is to lift the
hood of the actual vehicle under consideration and
check the emissions compliance label physically
15 installed on the vehicle. In general, the
information in the Green Book is as complicated as
the government regulations that generated the
certification data used in the ratings.

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SUMMARY OF THE INVENTION

This invention provides a method of
developing and communicating information regarding
the products of a selected industry. The method
25 implements a market-based system for sustaining
the environment by using the Internet. The method
facilitates the acquisition of environmental
performance data relating to products of the
industry and the processing of it to develop
30 information meaningful and readily understandable
by consumers of the products. According to the
invention, information relating to an industry is

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developed and disseminated through the Internet by an independent business entity herein referred to as a "facilitator". This invention is useful in a variety of industries; however, it will be described herein with regard to the automotive industry as an illustrative example.

Part 47 This invention comprises a method of consolidating environmental performance data on cars and light trucks in an easy-to-understand and industry compatible manner for use by: (1) the consumer in the process of selection of a vehicle for purchase, (2) the vehicle manufacturers to facilitate consideration and awareness of their products through advertising, (3) the vehicle manufacturers to assess their relative environmental position in the market place and develop plans for any needed change, (4) the e-commerce automotive information/buying services (hereafter e-commerce automotive businesses) to provide relevant comparative data to aid their customers in selecting a vehicle for purchase. A critical element of the invention is the use of a computer network, e.g. the Internet, as a means to transmit information and to establish links and relationships among parties having related interests in the industry. This allows business to be conducted electronically, i.e. e-commerce, to compensate the facilitator. Further, the environmentally sensitive manufacturers and the environmentally sensitive products will be recognized by presentation of awards.

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Art 257 The method of this invention involves communication with business entities within the selected industry and with potential consumers, 5 purchasers of products or services, related industries and government. For example, when the method of the invention is applied to the automotive industry, the facilitator of the method would furnish the names of the manufacturers and 10 products which are recipients of the awards to the following for their respective purposes, as follows:

Automotive buyers - as a meaningful and 15 understandable rating of environmental sensitivity of different models of vehicles to aid their purchase decision,

Automotive manufacturers - as a means to 20 facilitate differentiating their offerings on an environmental performance basis from a creditable third party,

E-commerce automotive businesses - as a means 25 to provide consumers with environmental performance information to aid their automotive comparison and purchase decision.

Government agencies - as a viable market 30 based contribution to environmental protection,

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Special interest groups (Sierra Club, Environmental Defense Fund, etc.) - as a viable market based contribution to environmental protection,

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Media - as a reinforcement of positive environmental activities by government and industry, and

10 Wall Street/Insurance Industry - as a means to identify top environmentally sensitive, socially responsible companies.

15 A general objective of this invention is to provide a market-driven method of environmental performance communication by an industry, via the Internet and other media, with the public, potential consumers and others to provide easy-to-understand ratings of products or services in
20 relation to environmental sensitivity. These ratings are based upon objective standards and developed by a credible source independent of the manufacturer or service provider. In a preferred
25 implementation of the method of this invention, the ratings developed are symbolized by physical awards given periodically for the highest rated products or services and for the highest rated manufacturer or service provider.

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According to the invention, a market-based system for sustaining the environment is carried out by using the Internet as follows:

- 5 (a) selecting an industry from a group of industries having needs for improved environmental communications and marketing for its products,
- 10 (b) identifying a class of products manufactured by the selected industry (e.g., car and light-truck) from which consumers may choose a product for purchase and for which consumers may desire to have environmental performance information to consider as a factor in selecting a product for purchase,
- 15 (c) establishing a new e-commerce company for evaluating the individual products of said class of products in respect to the environmental performance of each individual product, said company being independent of
- 20 the members of the selected industry.
- (d) said e-commerce company developing an objective environmental performance rating system based upon a rating algorithm driven by quality assured data,

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- (e) obtaining said data from government sources
and private sector sources,
- (f) developing the virtual business
relationships supporting the marketing
5 services (e.g., award fabrication, logo
merchandise, point-of-sale displays,
consulting, etc.) offered by the said e-
commerce company,
- (g) processing the data into ratings in
10 accordance with said algorithm to identify
the products which are the most
environmentally sensitive,
- (h) and presenting physical awards in
recognition of the most environmentally
15 sensitive products to the manufacturers of
those products,
- (i) establishing web site to communicate the
rating system and the top environmental
performers (award winners) to consumers and
20 other stakeholders,
- (j) said e-commerce company facilitating the
promotion of the results of said
environmental performance evaluation in
accordance with said ratings by companies

winning the awards and e-commerce automotive businesses to communicate to consumers and other stake-holders, via the Internet and other media identification of the products which are the most environmentally sensitive,

(k) whereby consumers, having an unfulfilled need to sustain the environment, are enabled to select and buy an award winning product that is among the top environmentally sensitive products of the available products and companies offering such products achieve increased sales and profits and are encouraged thereby to develop and sell new products that are more environmentally sensitive,

1) and whereby the environment is improved because more environmentally sensitive products are purchased and developed instead of less environmentally sensitive products, thereby establishing a market-driven, as opposed to government regulated, approach to improving the environment.

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A complete understanding of this invention may be obtained from the detailed description that follows taken with the accompanying drawings.

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DESCRIPTION OF THE DRAWINGS

Amk p17 Figure 1 is a functional block diagram of the business process of this invention;

Amk p22 Figures 2A and 2B show an example of segmentation of the automotive market;

Figure 3 shows example of the listing of the AMES Award winners;

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Figure 4 shows communication flow between the facilitator, the industry and organizations relevant to the industry;

20 Figure 5 is a diagram illustrating the synergism of the inventive system; and

Figure 6 is a diagram illustrating how a market-based system works.

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BEST MODE FOR CARRYING OUT THE INVENTION

Referring now to Figure 1, there is shown an illustrative embodiment of the invention as applied to the automotive industry. The invention is a method of processing information and data, converting it to a simple format compatible with

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the industry and meaningful to consumers and other users, and disseminating it, via the Internet and other media, to such users. It will be understood as the description proceeds that the invention may
5 be implemented in different ways and is useful in a wide variety of other applications.

GENERAL DESCRIPTION

10 In accordance with this invention, an individual or a company, say the Environmental Performance Research Institute (hereafter EPRI), serves as a facilitator in selecting an industry based on the industry's need to improve both its
15 environmental communication and environmental marketing practices. For example, say the automotive industry was selected. EPRI then determines which product or service characteristic(s) would benefit from a third party
20 simplification and Internet consumer notification program. An e-commerce subsidiary company, say amesaward.com (hereafter AMES), is formed by EPRI to implement the program. As the "implementor", AMES objective is to improve the communication of
25 the industry and members of the industry with the public and also with organizations, government agencies, and special interest groups related to or concerned with the industry. AMES would provide a comparative, easy-to-understand means to
30 communicate to consumers and other stakeholders, via the Internet, the automotive brand/models that are the most environmentally sensitive. It is

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well-known that certain industries are held in somewhat low esteem by the public as well as by certain government agencies and special interest groups with regard to industry activities which
5 have a deleterious effect on the environment. With respect to the automotive industry, such activities include the manufacture and sale of products which result in noxious emissions into the atmosphere, waste disposal and consumption of
10 natural resources.

As noted above, the automotive industry will be taken as an example industry in the description of this invention although it is only one of
15 several which might be served by this invention.

The automotive industry has had widespread attention, in regard to the environment, by special interest groups and governmental agencies
20 as well as the general public for many years. It has been subject to government regulations, both state and federal, in respect to air pollution by engine exhaust gases and evaporative emissions. At the present, the federal government through the
25 Environmental Protection Agency (EPA) and the Department of Energy (DOE) imposes strict standards on the sale and performance of all light duty vehicles with respect to gas mileage and in respect to noxious components in engine exhaust
30 gases and evaporative emissions. The compliance with federal regulations, for example, and the determination thereof involves highly technical

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and complex procedures and nomenclature. Although publications are available to the public which give detailed information on the requirements of and compliance with the federal regulations, they
5 are difficult, if not impossible to understand by the layman.

It is also recognized that the automotive industry has an impact on the environment by
10 reason of its voluminous use of materials such as metals and plastics. The content of recycled materials in new products could be considered as a measure of a manufacturer's environmental sensitivity. At present, recycling is of great
15 concern, not only to the manufacturers, but also to regulatory agencies, special interest groups and consumers.

The environmental sensitivity of a vehicle
20 manufacturer in regard to recycling materials, as practiced in its overall vehicle production and as practiced with respect to individual models, is not regulated by governmental agencies and credible information is, practically speaking,
25 unavailable to the public.

As a result, the person who desires to buy a new car cannot obtain useable information for identifying the manufacturers and car models which
30 are highly rated for environmental sensitivity.

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Sub a6) Before data collection begins, AMES segments the industry into comparable product or service groups that consumers typically consider in their purchase decision. For example in the automotive industry, product offerings could be categorized into eight car (subcompact, compact, mid-size, full-size, premium, luxury, sporty, and sports) and seven light truck (minivan, full-size van, compact pickup, full-size pickup, compact SUV, mid-size SUV, and full-size SUV) vehicle utility classes (hereafter VUC). This invention provides consumers looking for a specific vehicle utility with an opportunity to learn which product offerings in a VUC are the most environmentally sensitive. An example of the automotive market segmentation is shown in Figure 2.

Sub a7) According to this invention, the public interest is served by converting highly technical data (which is available from the automotive manufacturers, EPA and DOE on environmental sensitivity but which is not understandable to the layman) and developing it into a meaningful rating or ranking of each manufacturer and/or each brand/model of vehicle on the basis of environmental sensitivity. In this process, AMES obtains all needed technical data from EPA and DOE under the provisions of the *Freedom of Information Act* for air pollution and fuel consumption. Such data is certified to the government as to accuracy by the manufacturers. AMES obtains all necessary technical information in regard to materials

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recycling from manufacturers who chose to voluntarily submit the information. To verify its accuracy an independent audit is made of the records of each automotive company by an
5 independent auditor engaged by AMES.

AMES analyzes the technical data regarding air pollution, fuel consumption and recycling of materials for each manufacturer and each vehicle
10 model for the period under consideration, such as the annual model year. AMES processes the data in a manner to quantify, by numerical values, the environmental sensitivity of each manufacturer and each brand/model.

15 The determination of environmental sensitivity for each manufacturer may aggregate environmental performance of all its brand/models as well as other automotive Life Cycle Assessment
20 (hereafter LCA) considerations. Suitably, the manufacturer with the highest ranking and hence is designated as "Best". Manufacturers may also be segmented into classes based on their breadth of product offerings (e.g., Full Line, Focused Line
25 or Specialty Line).

The various brand/models from all manufacturers are segmented into VUC as described earlier and the brand/models within each VUC are
30 also ranked. The brand/models which are in the uppermost tier of ranking are recognized by awards, such as trophies or plaques. Thus, awards

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are presented to manufacturers for overall environmental sensitivity and awards are also given to brand/models for environmental sensitivity. Typically, the top manufacturers and
5 the upper quartile of brand/models in each VUC would be presented with awards while manufacturers and brand/models with lower ranking would not be publicized. An example of a listing is shown in Figure 3.

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SPECIFIC DESCRIPTION OF THE METHOD OF THIS INVENTION

The manner in which this invention is carried
15 out will be set forth below with reference to the automotive industry as the exemplary application of the invention.

In putting the invention into practice, a
20 company, not a member of the industry, but a member of the e-commerce industry, is established or identified by the facilitator who undertakes to implement the method. In this case the facilitator is called the EPRI and the e-commerce
25 company is called AMES both of which include personnel with expertise in the automotive industry.

The business process steps involved in the
30 communication, marketing and environmental performance ranking system are provided below. The sequence is not to be taken as a required

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sequence of performance of the steps. Further,
the description of a step in the listing below
indicates that it should be considered for
implementation but does not indicate that it is
5 essential to the successful implementation of the
method.

The following steps are shown in Figure 1 and
are identified therein by reference numbers which
10 are the same as the step numbers given below.

Step 1 - Formation of a Facilitator Company

Sub a 87 As discussed above, the EPRI serves as a
15 facilitator for selecting an industry, identify
product characteristics that benefit from
application of this method and establishing an e-
commerce business subsidiary that implements the
~~method~~

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Step 2 - Industry Selection by the Facilitator

The facilitator, EPRI, identifies a need in
the relevant industry, in this case, the
25 automotive industry, for improved environmental
communications and environmental marketing to the
consumers of its products and organizations having
an interest in the industry. The facilitator
identifies which field of activity by the industry
30 gives rise to the need for improved communications
and marketing. For example, the environmental
performance of passenger cars and light-duty

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trucks as it effects the air quality, the threat of global warming, consumption of landfill space, and contamination of surface and ground water.

Step 3 - Identify Environmental Product Characteristics

The facilitator then identifies criteria such as vehicle emissions, fuel economy and recycled material content which are of special concern but not communicated or marketed in a meaningful consumer friendly (i.e., readily understandable by consumers) manner to potential customers and the public. The criteria are based on accepted industry environmental impact analysis tools, such as Life Cycle Assessment.

Step 4 - Establish an e-commerce Business

20 The facilitator establishes or selects an independent, third party e-commerce business subsidiary to implement the remainder of this method for the industry. The subsidiary (the implementor), in this case AMES, will complete the
25 technical assessment of environmental product characteristics and implement the remaining steps in the business process. It is necessary for the staffing of the subsidiary to have relevant industry experience in the industry selected. See
30 Step 7A for additional comments.

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**Step 4A - Develop a Product Segmentation Approach
Within an Industry**

In general, consumers shopping for products
5 and/or services will do so by the utility that
product and/or service provides. In this example,
AMES has grouped cars and light trucks into VUC
that have similar utility and are generally
considered as competitors in the marketplace.
10 This grouping or segmentation of the market allows
essentially apples-to-apples comparison of the
environmental performance of brand/models that
provide the consumer similar utility.

**15 Step 5 - Develop an Algorithm for an Environmental
Performance Rating System**

AMES, in this example, determines a
communication format which will be readily
20 understandable by the public and consumers.
Further, AMES develops an algorithm for
translating the existing available data and
establishes unique databases that will allow the
algorithm to yield a specific numerical score for
25 a brand/model or manufacturer. The end result is
a rating of the products or services of the
industry. In this step of the process it may be
necessary to establish both an algorithm for
generating numerical ratings and a criteria for
30 evaluating the ratings and transforming the
ratings into rankings. See Appendix A (3 pages)

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Step 5A & B - Decide if it is Necessary to Develop
5 Database(s) and Develop the Database(s)

It may be necessary to develop proprietary databases to support the rating system. In the case of the automotive industry it was necessary to develop forecasts of vehicle configuration sales for the applicable model year to a level of detail only available through manufacturers and in manufacturers' submissions to government agencies classified as, "trade secrets" by the industry. If the manufacturers chose not to share information with AMES and if such databases are required, the subsidiary will have to develop the necessary processes to generate the database(s).

20 **Step 5C – Develop Technical Paper**

As a preferred step in the process (may not be necessary in all cases), a technical paper that supports the rationale for the rating algorithm may help in gaining industry and other stakeholder acceptance of the rating system. In the automotive example, a paper entitled, *Evaluating the Environmental Performance of Passenger Vehicles*, see Appendix B (26 pages), was developed. The development of a paper serves as a means to solicit concept and peer review of the rating algorithm and its associated weighting

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factors. In addition, it opens a dialogue with stake-holders and facilitates their input into the rating system and implementation process.

5 **Step 6 - Establish Virtual Business Relationships**

As a communication and marketing e-commerce business it is necessary to establish support activities that provide the services necessary to
10 implement specific aspects of the business process. In the automotive example it was necessary to establish virtual services for public relations, graphic arts, Web site development and hosting, legal services, marketing materials,
15 technical consultant, award fabrication, merchandising services and other business support activities. The process establishes these support services on a virtual basis to minimize costs and maximize efficiencies of the business entity.

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Step 7 - Develop and Implement Communication Plans

Both a business-to-business and a third party-to-consumer communication plans need to be
25 developed and implemented to gain acceptance for the rating system and recognition for its marketing and societal benefits. In the automotive example the plans would be developed and implemented in concert with a public relations
30 firm. This would be considered both a launch and ongoing sustaining activity for the business entity.

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Step 7A - Utilize Industry Accepted Protocols

Autag 5 As a supplement to the communication plans, it is necessary to learn and utilize industry-accepted protocols for the industry selected. In the automotive example it was necessary to utilize protocols such as peer review in the technical community, Auto show press preview schedules, Federal Register promulgation of applicable regulations and rules, industry sources for identification of e-commerce automotive businesses, EPA, DOE and CARB contacts, Non-Government Organizations, academic contacts, Federal Trade Commission guidelines on environmental claims, research of market trends sources and contacts at automotive manufacturers. Members of the AMES would have extensive industry experience that allowed the implementation of this process step. Establishment of e-commerce business entity in Step 4 must highly weigh this step in the selection or creation of the subsidiary.

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Step 7B - Execute a Web Site

It is necessary to design and execute a Web site that communicates the environmental performance awards to the public and in particular to automotive consumers. The site serves as the central communication tool to gain recognition and acceptance for the awards and protect the

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intellectual property of the results of this business process. It may disclose the manner in which the award program operates to be of service to the consumer and the public in general by
5 providing validated information that is not controlled by the industry or its members. It also serves as a portal to affiliated business enterprises that both support the service and utilize the service in their respective offerings.

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Step 7C - Link Web Site to Licensees

By providing a link from the implementor's Web site, to the Web site of the licensees, the
15 implementor (Ames in the automotive example) provides a safe harbor for claims made by manufacturers that they have won environmental performance awards. In addition, linkages provide an objective third party endorsement of the award
20 winners, which can be used in promotional activities. Importantly, linkages provide the contractual framework in which the usage of the awards can be controlled to maintain their effectiveness in influencing consumer preferences
25 to purchase environmentally sensitive products.

Step 8 - Gather Data and Identify Top Performers

Data is secured using electronic transfer of
30 information to maximize efficiencies and eliminate errors and omissions. The information is processed utilizing the rating algorithm and award

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criteria into rankings that identify the top environmental performers and award winners. Quality control techniques are employed to assure the accuracy of the calculations.

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Step 9 - Facilitate Promotional Activities

The results of Step 8 are announced first to the appropriate winners to provide lead time for public announcements by them and then simultaneously posted on the Web site, submitted for copyright protection and announced in copyright format to the public in a media press release. Winners are consulted to facilitate the promotional activities that will generate awareness, consideration and purchase preference. The winners that capitalize on the unfulfilled needs of a consumer base that seeks environmentally sensitive brand/models offerings will accrue increased market share and profits.

Step 9 - Revise Process Implementation

A, "lessons learned", "root cause analysis" and corrective actions are performed to improve the next cycle of implementation.

Synergism of the Communication Method

30/10/07 It will now be appreciated that AMES, has established a multi-party interactive network for communication with regard to the environmental

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Part A 10

sensitivity of the passenger cars and light trucks and the manufacturers as a whole. This network of communications is shown in Figure 4.

5 AMES as implementor of the communication system selects and processes data and information from various sources including the industry members and governmental agencies in regard to environment performance matters. AMES analyzes
10 the data and information and, in accordance with a predetermined algorithm, develops ratings of vehicles and manufacturers in respect to environmental sensitivity. AMES presents physical awards in accordance with the ratings and
15 promulgates information via the Internet in respect to the higher tier of the ratings and awards.

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20 In the communication network, AMES posts the results of its rankings on its Web site on the Internet. AMES has direct communication with government agencies such as the EPA and the DOE as well as certain state agencies. It also has direct communication with special interest groups,
25 such as the Environmental Defense Fund, Union of Concerned Scientists, etc. and with Internet information services, such as The Kelly Blue Book, autobytel.com, edmunds.com, etc. all of whom have Web sites on the Internet. Also, AMES has direct
30 communications with the media in respect to press releases regarding the AMES Award winning products. There is also direct communication with

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5 Wall Street, especially with the auto industry analysts, because of the impact of the degree of social consciousness of companies listed on the stock exchange. There is also direct contact with
10 the insurance industry because rapid changes in the normal weather or environmental quality have an influence on their business. AMES also maintains a constant dialog with the vehicle manufacturers and e-commerce information and
15 buying services to receive feedback on AMES segmentation of the market, licensing of the awards and other matters. The communication among and interaction among AMES, vehicle manufacturers, the public and other organizations is realized in many respects through Web sites on the Internet.

20 As shown in Figure 5, each of the participants realizes benefits which arise from the activities of the others in the network and each contributes something by way of information processing and communication to others in the network and to the public. Prospective purchasers of cars or trucks gain helpful information at no cost and the sales of environmentally sensitive
25 vehicles are enhanced by the system.

30 AMES, as the implementor of the system, is compensated for its services by licensing fees assessed to manufacturers for advertising and promotional use of the AMES logos and the AMES Awards. Manufacturers realize increase market

share and profits by promoting and advertising their AMES Award winning brand/models.

5 The e-commerce information and buying Web sites on the Internet are also a source compensation for AMES by licensing the use of the AMES Award winners list, logo and Award that provides their customers with important environmental performance information and
10 reinforcement of a third party validation to facilitate their purchase decision. The e-commerce Web sites gain incremental visitors, revenue and profits from consumers fulfilling their need to contribute to sustaining the
15 environment.

20 The environment benefits from the system in that vehicles that have a lesser impact on the environment comprise a large percentage of new vehicles sold.

25 The government agencies and special interest groups and information services realize benefits from the system along with the media, Wall Street, and insurance companies. Thus, it can be said that the communication system of this invention is synergistic in the sense that the beneficial results achieved by the interaction of the group of participants in the system is greater than the
30 sum of the results of the individual participants.

CONCLUSION

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Although the description of this Internet based invention has been given with reference to a particular embodiment, it is not to be construed
5 in a limiting sense. Many variations and modifications of the invention will now occur to those skilled in the art of developing a market based initiative, see Figure 6, to contribute to sustaining the environment. For a definition of
10 the invention reference is made to the appended claims.

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